

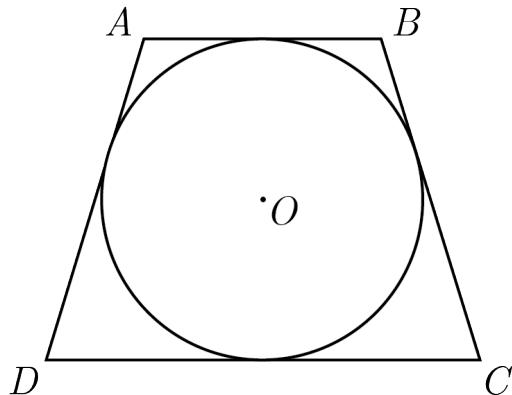


## Problem of the Week

### Problem D

#### A Circle in a Trapezoid

A circle with centre  $O$  and radius 15 m is inside trapezoid  $ABCD$  such that each side of  $ABCD$  is tangent to the circle. In the trapezoid,  $AB \parallel CD$  and  $AD = BC$ , so  $ABCD$  is an isosceles trapezoid.



If the area of  $ABCD$  is  $2025 \text{ m}^2$ , determine the lengths of  $AD$  and  $BC$ .

Note: For this problem, you may want to use the following known results about circles:

1. If a line is tangent to a circle, then the line is perpendicular to the radius drawn to the point of tangency.
2. A line drawn from the centre of a circle perpendicular to a tangent line meets the tangent line at the point of tangency.

